

PATENT ABSTRACTS OF JAPAN

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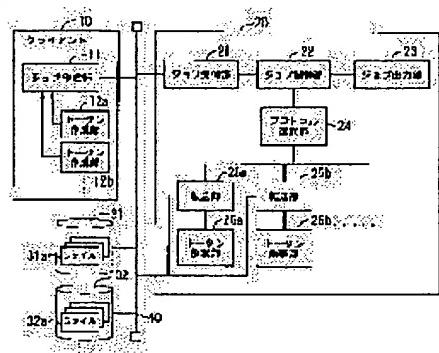
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(54) PRINTING SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To cope with plural kinds of transfer protocols for file transfer in the case of executing a printing processing by preparing only a job at the time of a printing server instruction and obtaining a file from a specified storage part at the time of a job processing for printing data.

SOLUTION: Token preparation parts 12a, 12b,... for respective protocols are provided on the side of a client 10 and a protocol selection part 24 and the pairs of transfer, parts 25a, 25b,... and token interpretation parts 26a, 26b,... required for the respective protocols are provided on the side of a printing server 20. At the time of preparing the job in the job preparation part 11 of the client 10, the token preparation part corresponding to the protocol is used. In the printing server 20, the protocol selection part 24 selects the informed protocol, the corresponding transfer part and token interpretation part are activated, a token interpreted in the token interpretation part is used, a file storage part is accessed and the file is obtained.



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CLAIMS

[Claim(s)]

[Claim 1] Two or more clients which have a job creation means to create a job, respectively, The file management equipment which is carrying out preservation management of the file used as the object for printing, and the print server which performs print processing according to the directions which received the job published from said client and were shown in this job are connected by the network. In the print system to which said print server acquires the file saved to said file management equipment, and performs print processing with the remote print directions from said client Said client is equipped with a token creation means which creates a token for every protocol and is passed to said job creation means by which said print server accesses the file of said file management equipment. The protocol selection means which chooses the protocol which accesses said file management equipment connected to the network where the object for printing said print server was indicated to be to the job is saved. A transfer means to acquire the file which is started corresponding to the protocol which accesses said file management equipment, and which was formed for every protocol and chosen by this protocol selection means, and is saved to said file management equipment, The print system characterized by having the token interpretation means which takes out information required for the protocol with which the content of the token which was prepared corresponding to this transfer means and created with said token creation means is interpreted, and said transfer means accesses the file of said file management equipment.

[Claim 2] It is the print system according to claim 1 characterized by for the object for printing to have a reference place assignment judging means control not to start said protocol selection means noting that it is in the file-management equipment in a print server when it judges whether said print server has assignment of file-management equipment in the information created by said token creation means and there is no assignment of file-management equipment.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to the print system which acquires the file saved to the file management equipment distributed on the network by the directions from a client about a print system, and performs print processing.

[0002]

[Description of the Prior Art] In a current network environment, the functional part which constitutes copy / print system for reproducing a document may distribute on a network. For example, it may exist on the machine by which functional parts, such as the scanning section which reads print data, the data accumulation section which stores data, and the printing section which prints data, differ. When a client publishes a print request to the printing section in such an environment, print directions are usually sent together with data. For this reason, when a certain client tends to carry out the printed output of the data stored in the data accumulation section on another machine, after that client once takes out the data of the data accumulation section and stores them, he sends print directions together with that data anew, and is trying to obtain a printed output.

[0003] On the other hand, there is description of a reference place transfer in the description in DPA (Document Printing Application) of ISO/IEC 10175-1 about a printing protocol. That is, a print server takes out and carries out the printed output of the data from the specified reference place by specifying the reference place of data from a client and taking out print directions to a print server.

[0004]

[Problem(s) to be Solved by the Invention] Although two or more kinds of communications protocols exist between functional parts when it constitutes copy / print system conventionally combining various functional parts, in DPA, reference is not made about two or more kinds of transfer protocols. However, when it is going to constitute copy / print system actually, it is necessary for the data accumulation section to deal with this in a print server side, since various protocols exist.

[0005] Moreover, the data accumulation section and the printing section may exist on the same machine. Also in this case, in the former, useless transfer actuation of the data transfer from the data accumulation section to the printing section is performed within the machine.

[0006] This invention is made in view of such a point, and it aims at offering the print system corresponding to two or more kinds of transfer protocols.

[0007]

[Means for Solving the Problem] Two or more clients which have a job creation means to create a job, respectively in order to solve the above-mentioned technical problem in this invention, The file management equipment which is carrying out preservation management of the file used as the object for printing, and the print server which performs print processing according to the directions which received the job published from said client and were shown in this job are connected by the network. In the print system to which said print server acquires the file saved to said file management equipment, and performs print processing with the remote print

directions from said client Said client is equipped with a token creation means which creates a token for every protocol and is passed to said job creation means by which said print server accesses the file of said file management equipment. The protocol selection means which chooses the protocol which accesses said file management equipment connected to the network where the object for printing said print server was indicated to be to the job is saved, A transfer means to acquire the file which is started corresponding to the protocol which accesses said file management equipment, and which was formed for every protocol and chosen by this protocol selection means, and is saved to said file management equipment, The content of the token which was prepared corresponding to this transfer means and created with said token creation means is interpreted. The print system characterized by having the token interpretation means which takes out the information which said transfer means needs for the protocol which accesses the file of said file management equipment is offered.

[0008] According to the above-mentioned configuration, in case a job is created with the job creation means of a client, a print server creates a token using a token creation means prepared for every protocol to access the file of file management equipment. A job creation means creates the job which specified reference data transfer etc., and takes out print directions to a print server with a token. In a print server, when the job is received and reference data transfer is directed to the job, a protocol selection means chooses the transfer means corresponding to the protocol of file management equipment, the file of file management equipment is accessed using the token interpreted with the token interpretation means, and the file is transmitted to a print server. A print server carries out the printed output of the transmitted file.

[0009] Moreover, a print server has a reference place assignment judging means, and he is trying to judge whether the information created by the token creation means has assignment of file management equipment.

[0010] When there is no assignment of file management equipment in the received job according to this configuration, it will judge that the file for printing is in a local machine, i.e., the file management equipment in the print server concerned, it acquires a file from the file management equipment in a print server directly, without starting a protocol selection means, and passes it to a job output means.

[0011]

[Embodiment of the Invention] Drawing 1 is the principle block diagram having shown the print system of this invention. The print system of this invention consists of at least one client 10, a print server 20, at least one file servers 31 and 32, and ..., and is mutually connected by the network 40, respectively. The client 10 has the job creation section 11 which creates a job, the token creation sections 12a and 12b to which a print server accesses the file of file management equipment and which were prepared for every protocol, and ... The job reception section 21 which receives the job by which the print server 20 was published from the client 10, The job control section 22 which manages the received job, and the job output section 23 which performs print processing according to the directions shown in the job, The protocol selection section 24 which chooses the protocol which accesses the specified file server, It has the token interpretation sections 26a and 26b and ... which were prepared corresponding to the transfer sections 25a and 25b and ... which acquire the file which accesses a file server, and which is prepared for every protocol and saved at the file server, and each transfer section. Moreover, preservation management of Files 31a and 32b and ... which become an object for printing in file servers 31 and 32 and ... is carried out, respectively.

[0012] First, in a client 10, in case a job is created by the job creation section 11, a print server 20 creates a token using the token creation sections 12a and 12b corresponding to the protocol which accesses the file server which saves the file for printing, and ... For example, file 31a of a file server 31 is considered as the file for printing, and suppose that the token for accessing to the file server 31 using token creation section 12a was created. The job creation section 11 creates the job which specified the transfer approach, duplicate number of copies, etc., and issues print directions to a print server 20 together with a token.

[0013] In a print server 20, the job reception section 21 receives the job, and the job control section 22 performs various control about job processing. Here, when reference data transfer is

directed to the received job as the transfer approach and the file server 31 is specified, the job control section 22 passes control to the protocol selection section 24. The protocol selection section 24 chooses and starts the transfer sections 25a and 25b and the transfer section corresponding to the protocol of the file server 31 specified out of ..., for example, transfer section 25a. Transfer section 25a accesses file 31a of a file server 31 using the token interpreted in corresponding token interpretation section 26a, and transmits the file 31a to a print server 20. The printed output of the transmitted file 31a is passed and carried out to the job output section 23 through the job control section 22.

[0014] Here, although reference data transfer is directed to the received job as the transfer approach, when the file server 31 is not specified, the job control section 22 judges with the file saved in the print server 20 as a file for printing being directed, and does not carry out transfer actuation of a file. In this case, in the phase to which the sequence of processing that job came, direct reading appearance of the file for printing is carried out from the location saved, and it is passed to the job output section 23.

[0015] For this reason, since the increase in efficiency of the resource by using it, choosing only a required transfer protocol is calculated and the token creation sections 12a and 12b, ..., the transfer sections 25a and 25b, ... and the token interpretation sections 26a and 26b, and ... moreover are not dependent on other configurations, it can add according to a transfer protocol. Moreover, since the file on the same machine does not have the need for a transfer, a useless file transfer can be prevented.

[0016] Next, the case where the gestalt of operation of this invention is applied to network printing equipment is made into an example, and it explains. Drawing 2 is drawing showing the concrete example of a configuration of a client.

[0017] In this drawing, the job creation section 11 has the protocol selection section 13 which chooses a protocol. The protocol selection section 13 holds the protocol table, and whenever the token creation section according to protocol is installed in a client, the token creation section is registered. On this protocol table, the information on whether the token creation section is working is also saved. In that client, this information is registered, when a user uses someone previously. Thereby, when many token creation sections are installed, the token creation section under current operation can be judged. Moreover, since only the required token creation section can be operated, the capacity of the memory occupied at the time of operation can be reduced.

[0018] If one of the token creation sections 12a and 12b and the ... is chosen by the protocol selection section 13, for example, token creation section 12a is chosen, token creation section 12a will be started and the input of required information will be required of a user. An example of the input screen is shown below.

[0019] Drawing 3 is drawing showing the example of the input screen of the token creation section. Operation of token creation section 12a displays a window 120 like a graphic display on the screen of the display which a client 10 does not illustrate. There is the input column of the "communications protocol" which inputs the "remote machine name" which inputs the identifier of a file server, and the protocol name which transmits a file, the "pathname" which inputs the file storing location in that file server, the "user name" which inputs a user name, and the "password" which enters a password in this window 120. In the example of a graphic display, a file server name is "xx.xx.com", a file transfer protocol is "ftp (file trasfer protocol)", the file for printing "a.ps" is saved at the directory or folder "tmp" of the file server, and the case where a user name is set to "taro" is shown. In addition, he does not display the content of an input but is trying, as for a password, only for the inputted digit count to display it by "*."

[0020] Token creation section 12a enciphers the inputted information, and passes it to the job creation section 11 by making enciphered information into a token. In the job creation section 11, the job which made file storing information the reference place of data is created. An example of the job is shown below.

[0021] Drawing 4 is drawing showing the example of a content of the job created in the job creation section. The job creation section 11 specifies attribute information according to the definition of DPA, when creating a job. According to the example of a graphic display, the job 110

which specified "2" as the job name (job-name) as attribute information at "JOB1" and duplicate number of copies (copy-count) is created. "Reference data transfer (referenced-data-transfer)" is set as the transfer approach (transfer method) of directing performing a file transfer as attribute information simultaneously. The location location of a file is specified by "DOR (Distinguished-object-reference;ISO/IEC 10031-2)" as directions (document-content) of a file to print. An example of this DOR assignment is shown below.

[0022] Drawing 5 is drawing showing the example of a content of DOR of the reference place specified as the job. As an example of the content of DOR, the case where it is on another machine is shown, and the case where it is on a print server 20, i.e., the same machine, is indicated to be the print server [like a file server] whose storing location of the file referred to at (A) is to (B). First, it explains from the case where the file on a remote machine is specified.

[0023] As shown in (A), DOR is described according to the definition, and according to the example of a graphic display, to "AEIdentifier" of the component of DOR "xx.xx.com" which is a remote machine name, for example, a file server name, as an identifier (name) is specified. It specifies whether the file server name is described by which network protocol as syntax (syntax). And here DNS (Domain Name Service) which is the protocol of a UNIX (it omits in addition to this U.S. [to which X/Open Co. and Ltd. have licensed] and trademark [in a country], and henceforth) system is specified. The location information on the file on the remote machine, i.e., the pathname on the machine, "/tmp/a.ps" is specified as the following element "local-reference", and, finally a token is specified. Here, since the file transfer protocol "ftp" of a UNIX system is chosen, the user name and password which are information required for a token at "ftp" are described.

[0024] On the other hand, when a file is on the same machine, as shown in (B), "AEIdentifier" of DOR is set as "nothing." Of course, since there is no need for a file transfer in this case, a token required to access a remote machine is also "nothing."

[0025] Drawing 6 is drawing showing the example of a configuration of a print server. In this drawing, the print server 20 has the job reception section 21 connected to the network 40. This job reception section 21 is constituted by two or more job reception sections 21a and 21b and ... so that a demand can be received from the client of various protocols. The output of the job reception section 21 is connected to the job control section 22. Two or more job-processing sections which will perform required processing by the time the job control section 22 passes a job to the job output section 23 which performs printing processing actually, and this job output section 23 are connected. Here, the job-processing section 27 which performs format conversion of a text file, and the job-processing section which carries out image processing or carries out advice processing to a client etc. although only the job-processing section 28 which acquires a file from a remote machine is shown, and a graphic display is not carried out to others are connected as the job-processing section.

[0026] The job-processing section 28 concerning file transfer processing consists of the transfer sections 282a and 282b prepared according to the protocol by the pair with the protocol selection section 281, ... and the token interpretation sections 283a and 283b, and ... In this job-processing section 28, in order that the transfer sections 282a and 282b and ... may access a remote machine, it connects with the direct network 40. What is necessary is just to only add the pair of the transfer section and the token interpretation section, without changing other configurations with the token creation section of a client, when a transfer protocol is added newly.

[0027] When processing the job received in the job reception section 21, the job control section 22 calls the protocol selection section 281 of the job-processing section 28, when assignment of the transfer approach shown in the job is judged and this is directing reference data transfer. The protocol selection section 281 chooses a protocol from DOR, and starts the transfer section according to the selected protocol. Here, suppose that transfer section 282a was started, for example. Transfer section 282a is requested from the token interpretation section 283a, interprets a token, acquires information required of "ftp", i.e., a user name, and a password, is accessed to the file server of the machine name shown in DOR based on this, and acquires a file. If the acquired file is required, format conversion processing of a text file is

performed in the job-processing section 27, and the printed output of it is passed and carried out to the job output section 23.

[0028] Drawing 7 is drawing showing the example of a configuration of the protocol selection section. In this drawing, the protocol selection section 281 holds protocol table 281a, and whenever the pair of the transfer section and the token interpretation section is installed in this job-processing section 28, that transfer section is registered into protocol table 281a. The information on whether the transfer section is working is also saved at this protocol table 281a. The protocol selection section 281 judges whether in selection of a protocol, the registration information on being under this operation is seen, and the transfer section is newly started to it. By this, only the required transfer section will be started.

[0029] If selection of a protocol is performed in the protocol selection section 281 by the directions from the job control section 22, the transfer section corresponding to the selected protocol is started, and the token interpretation section corresponding to it will decrypt the token enciphered in the token creation section of a client, and will return the decrypted token to the transfer section. The transfer section will access a file server using the token, and will acquire the target file.

[0030]

[Effect of the Invention] As explained above, a token creation means required for a file transfer for every protocol selection means and protocol in this invention, Since it has a transfer means and a token interpretation means and the means required for the file transfer in the protocol was selected at the time of an activity Since what is necessary is to add only the means relevant to the transfer protocol also when adding a transfer protocol newly, since the increase in efficiency of resources, such as memory, can be calculated and a means required for a file transfer is independently with other functions, the addition of a transfer protocol is easy. Moreover, since the reference on the same machine (local) became possible by changing the expression of a remote reference, it becomes unnecessary to transmit the file on the same machine, and it can inhibit a useless file transfer.

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TECHNICAL FIELD

[Field of the Invention] Especially this invention relates to the print system which acquires the file saved to the file management equipment distributed on the network by the directions from a client about a print system, and performs print processing.

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PRIOR ART

[Description of the Prior Art] In a current network environment, the functional part which constitutes copy / print system for reproducing a document may distribute on a network. For example, it may exist on the machine by which functional parts, such as the scanning section which reads print data, the data accumulation section which stores data, and the printing section which prints data, differ. When a client publishes a print request to the printing section in such an environment, print directions are usually sent together with data. For this reason, when a certain client tends to carry out the printed output of the data stored in the data accumulation section on another machine, after that client once takes out the data of the data accumulation section and stores them, he sends print directions together with that data anew, and is trying to obtain a printed output.

[0003] On the other hand, there is description of a reference place transfer in the description in DPA (Document Printing Application) of ISO/IEC 10175-1 about a printing protocol. That is, a print server takes out and carries out the printed output of the data from the specified reference place by specifying the reference place of data from a client and taking out print directions to a print server.

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, a token creation means required for a file transfer for every protocol selection means and protocol in this invention, Since it has a transfer means and a token interpretation means and the means required for the file transfer in the protocol was selected at the time of an activity Since what is necessary is to add only the means relevant to the transfer protocol also when adding a transfer protocol newly, since the increase in efficiency of resources, such as memory, can be calculated and a means required for a file transfer is independently with other functions, the addition of a transfer protocol is easy. Moreover, since the reference on the same machine (local) became possible by changing the expression of a remote reference, it becomes unnecessary to transmit the file on the same machine, and it can inhibit a useless file transfer.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] Although two or more kinds of communications protocols exist between functional parts when it constitutes copy / print system conventionally combining various functional parts, in DPA, reference is not made about two or more kinds of transfer protocols. However, when it is going to constitute copy / print system actually, it is necessary for the data accumulation section to deal with this in a print server side, since various protocols exist.

[0005] Moreover, the data accumulation section and the printing section may exist on the same machine. Also in this case, in the former, useless transfer actuation of the data transfer from the data accumulation section to the printing section is performed within the machine.

[0006] This invention is made in view of such a point, and it aims at offering the print system corresponding to two or more kinds of transfer protocols.

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MEANS

[Means for Solving the Problem] Two or more clients which have a job creation means to create a job, respectively in order to solve the above-mentioned technical problem in this invention, The file management equipment which is carrying out preservation management of the file used as the object for printing, and the print server which performs print processing according to the directions which received the job published from said client and were shown in this job are connected by the network. In the print system to which said print server acquires the file saved to said file management equipment, and performs print processing with the remote print directions from said client Said client is equipped with a token creation means which creates a token for every protocol and is passed to said job creation means by which said print server accesses the file of said file management equipment. The protocol selection means which chooses the protocol which accesses said file management equipment connected to the network where the object for printing said print server was indicated to be to the job is saved, A transfer means to acquire the file which is started corresponding to the protocol which accesses said file management equipment, and which was formed for every protocol and chosen by this protocol selection means, and is saved to said file management equipment, The content of the token which was prepared corresponding to this transfer means and created with said token creation means is interpreted. The print system characterized by having the token interpretation means which takes out the information which said transfer means needs for the protocol which accesses the file of said file management equipment is offered.

[0008] According to the above-mentioned configuration, in case a job is created with the job creation means of a client, a print server creates a token using a token creation means prepared for every protocol to access the file of file management equipment. A job creation means creates the job which specified reference data transfer etc., and takes out print directions to a print server with a token. In a print server, when the job is received and reference data transfer is directed to the job, a protocol selection means chooses the transfer means corresponding to the protocol of file management equipment, the file of file management equipment is accessed using the token interpreted with the token interpretation means, and the file is transmitted to a print server. A print server carries out the printed output of the transmitted file.

[0009] Moreover, a print server has a reference place assignment judging means, and he is trying to judge whether the information created by the token creation means has assignment of file management equipment.

[0010] When there is no assignment of file management equipment in the received job according to this configuration, it will judge that the file for printing is in a local machine, i.e., the file management equipment in the print server concerned, it acquires a file from the file management equipment in a print server directly, without starting a protocol selection means, and passes it to a job output means.

[0011]

[Embodiment of the Invention] Drawing 1 is the principle block diagram having shown the print system of this invention. The print system of this invention consists of at least one client 10, a print server 20, at least one file servers 31 and 32, and ..., and is mutually connected by the network 40, respectively. The client 10 has the job creation section 11 which creates a job, the

token creation sections 12a and 12b to which a print server accesses the file of file management equipment and which were prepared for every protocol, and ... The job reception section 21 which receives the job by which the print server 20 was published from the client 10, The job control section 22 which manages the received job, and the job output section 23 which performs print processing according to the directions shown in the job, The protocol selection section 24 which chooses the protocol which accesses the specified file server, It has the token interpretation sections 26a and 26b and ... which were prepared corresponding to the transfer sections 25a and 25b and ... which acquire the file which accesses a file server, and which is prepared for every protocol and saved at the file server, and each transfer section. Moreover, preservation management of Files 31a and 32b and ... which become an object for printing in file servers 31 and 32 and ... is carried out, respectively.

[0012] First, in a client 10, in case a job is created by the job creation section 11, a print server 20 creates a token using the token creation sections 12a and 12b corresponding to the protocol which accesses the file server which saves the file for printing, and ... For example, file 31a of a file server 31 is considered as the file for printing, and suppose that the token for accessing to the file server 31 using token creation section 12a was created. The job creation section 11 creates the job which specified the transfer approach, duplicate number of copies, etc., and issues print directions to a print server 20 together with a token.

[0013] In a print server 20, the job reception section 21 receives the job, and the job control section 22 performs various control about job processing. Here, when reference data transfer is directed to the received job as the transfer approach and the file server 31 is specified, the job control section 22 passes control to the protocol selection section 24. The protocol selection section 24 chooses and starts the transfer sections 25a and 25b and the transfer section corresponding to the protocol of the file server 31 specified out of ..., for example, transfer section 25a. Transfer section 25a accesses file 31a of a file server 31 using the token interpreted in corresponding token interpretation section 26a, and transmits the file 31a to a print server 20. The printed output of the transmitted file 31a is passed and carried out to the job output section 23 through the job control section 22.

[0014] Here, although reference data transfer is directed to the received job as the transfer approach, when the file server 31 is not specified, the job control section 22 judges with the file saved in the print server 20 as a file for printing being directed, and does not carry out transfer actuation of a file. In this case, in the phase to which the sequence of processing that job came, direct reading appearance of the file for printing is carried out from the location saved, and it is passed to the job output section 23.

[0015] For this reason, since the increase in efficiency of the resource by using it, choosing only a required transfer protocol is calculated and the token creation sections 12a and 12b, ..., the transfer sections 25a and 25b, ... and the token interpretation sections 26a and 26b, and ... moreover are not dependent on other configurations, it can add according to a transfer protocol. Moreover, since the file on the same machine does not have the need for a transfer, a useless file transfer can be prevented.

[0016] Next, the case where the gestalt of operation of this invention is applied to network printing equipment is made into an example, and it explains. Drawing 2 is drawing showing the concrete example of a configuration of a client.

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[0018] If one of the token creation sections 12a and 12b and the ... is chosen by the protocol selection section 13, for example, token creation section 12a is chosen, token creation section

12a will be started and the input of required information will be required of a user. An example of the input screen is shown below.

[0019] Drawing 3 is drawing showing the example of the input screen of the token creation section. Operation of token creation section 12a displays a window 120 like a graphic display on the screen of the display which a client 10 does not illustrate. There is the input column of the "communications protocol" which inputs the "remote machine name" which inputs the identifier of a file server, and the protocol name which transmits a file, the "pathname" which inputs the file storing location in that file server, the "user name" which inputs a user name, and the "password" which enters a password in this window 120. In the example of a graphic display, a file server name is "xx.xx.com", a file transfer protocol is "ftp (file transfer protocol)", the file for printing "a.ps" is saved at the directory or folder "tmp" of the file server, and the case where a user name is set to "taro" is shown. In addition, he does not display the content of an input but is trying, as for a password, only for the input digit count to display it by "*".

[0020] Token creation section 12a enciphers the inputted information, and passes it to the job creation section 11 by making enciphered information into a token. In the job creation section 11, the job which made file storing information the reference place of data is created. An example of the job is shown below.

[0021] Drawing 4 is drawing showing the example of a content of the job created in the job creation section. The job creation section 11 specifies attribute information according to the definition of DPA, when creating a job. According to the example of a graphic display, the job 110 which specified "2" as the job name (job-name) as attribute information at "JOB1" and duplicate number of copies (copy-count) is created. "Reference data transfer (referenced-data-transfer)" is set as the transfer approach (transfer method) of directing performing a file transfer as attribute information simultaneously. The location location of a file is specified by "DOR (Distinguished-object-reference:ISO/IEC 10031-2)" as directions (document-content) of a file to print. An example of this DOR assignment is shown below.

[0022] Drawing 5 is drawing showing the example of a content of DOR of the reference place specified as the job. As an example of the content of DOR, the case where it is on another machine is shown, and the case where it is on a print server 20, i.e., the same machine, is indicated to be the print server [like a file server] whose storing location of the file referred to at (A) is to (B). First, it explains from the case where the file on a remote machine is specified.

[0023] As shown in (A), DOR is described according to the definition, and according to the example of a graphic display, to "AEIdentifier" of the component of DOR "xx.xx.com" which is a remote machine name, for example, a file server name, as an identifier (name) is specified. It specifies whether the file server name is described by which network protocol as syntax (syntax). And here DNS (Domain Name Service) which is the protocol of a UNIX (it omits in addition to this U.S. [to which X/Open Co. and Ltd. have licensed] and trademark [in a country], and henceforth) system is specified. The location information on the file on the remote machine, i.e., the pathname on the machine, "/tmp/a.ps" is specified as the following element "local-reference", and, finally a token is specified. Here, since the file transfer protocol "ftp" of a UNIX system is chosen, the user name and password which are information required for a token at "ftp" are described.

[0024] On the other hand, when a file is on the same machine, as shown in (B), "AEIdentifier" of DOR is set as "nothing." Of course, since there is no need for a file transfer in this case, a token required to access a remote machine is also "nothing."

[0025] Drawing 6 is drawing showing the example of a configuration of a print server. In this drawing, the print server 20 has the job reception section 21 connected to the network 40. This job reception section 21 is constituted by two or more job reception sections 21a and 21b and ... so that a demand can be received from the client of various protocols. The output of the job reception section 21 is connected to the job control section 22. Two or more job-processing sections which will perform required processing by the time the job control section 22 passes a job to the job output section 23 which performs printing processing actually, and this job output section 23 are connected. Here, the job-processing section 27 which performs format conversion of a text file, and the job-processing section which carries out image processing or

carries out advice processing to a client etc. although only the job-processing section 28 which acquires a file from a remote machine is shown, and a graphic display is not carried out to others are connected as the job-processing section.

[0026] The job-processing section 28 concerning file transfer processing consists of the transfer sections 282a and 282b prepared according to the protocol by the pair with the protocol selection section 281, ... and the token interpretation sections 283a and 283b, and ... In this job-processing section 28, in order that the transfer sections 282a and 282b and ... may access a remote machine, it connects with the direct network 40. What is necessary is just to only add the pair of the transfer section and the token interpretation section, without changing other configurations with the token creation section of a client, when a transfer protocol is added newly.

[0027] When processing the job received in the job reception section 21, the job control section 22 calls the protocol selection section 281 of the job-processing section 28, when assignment of the transfer approach shown in the job is judged and this is directing reference data transfer.

The protocol selection section 281 chooses a protocol from DOR, and starts the transfer section according to the selected protocol. Here, suppose that transfer section 282a was started, for example. Transfer section 282a is requested from the token interpretation section 283a, interprets a token, acquires information required of "ftp", i.e., a user name, and a password, is accessed to the file server of the machine name shown in DOR based on this, and acquires a file. If the acquired file is required, format conversion processing of a text file is performed in the job-processing section 27, and the printed output of it is passed and carried out to the job output section 23.

[0028] Drawing 7 is drawing showing the example of a configuration of the protocol selection section. In this drawing, the protocol selection section 281 holds protocol table 281a, and whenever the pair of the transfer section and the token interpretation section is installed in this job-processing section 28, that transfer section is registered into protocol table 281a. The information on whether the transfer section is working is also saved at this protocol table 281a. The protocol selection section 281 judges whether in selection of a protocol, the registration information on being under this operation is seen, and the transfer section is newly started to it. By this, only the required transfer section will be started.

[0029] If selection of a protocol is performed in the protocol selection section 281 by the directions from the job control section 22, the transfer section corresponding to the selected protocol is started, and the token interpretation section corresponding to it will decrypt the token enciphered in the token creation section of a client, and will return the decrypted token to the transfer section. The transfer section will access a file server using the token, and will acquire the target file.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the principle block diagram having shown the print system of this invention.

[Drawing 2] It is drawing showing the concrete example of a configuration of a client.

[Drawing 3] It is drawing showing the example of the input screen of the token creation section.

[Drawing 4] It is drawing showing the example of a content of the job created in the job creation section.

[Drawing 5] It is drawing showing the example of a content of DOR of the reference place specified as the job.

[Drawing 6] It is drawing showing the example of a configuration of a print server.

[Drawing 7] It is drawing showing the example of a configuration of the protocol selection section.

[Description of Notations]

10 Client

11 Job Creation Section

12a, 12b, ... Token creation section

20 Print Server

21 Job Reception Section

22 Job Control Section

23 Job Output Section

24 Protocol Selection Section

25a, 25b, ... Transfer section

26a, 26b, ... Token interpretation section

31, 32, ... File server

31a, 32b, ... File

40 Network

[Translation done.]

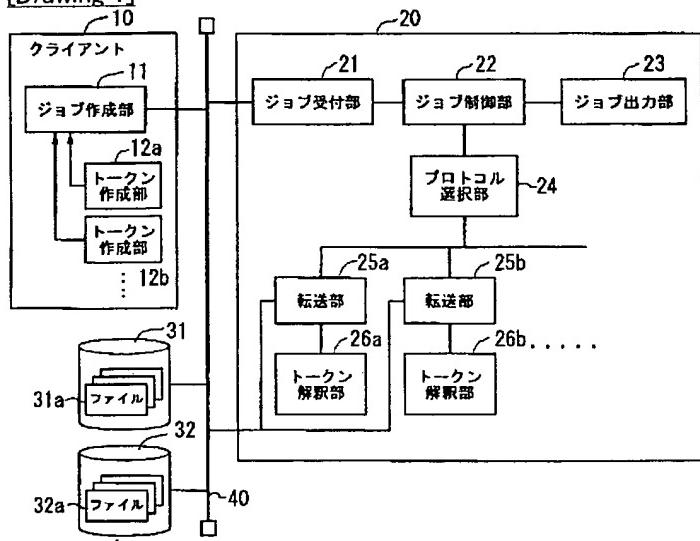
* NOTICES *

JPO and NCIPI are not responsible for any damages caused by the use of this translation.

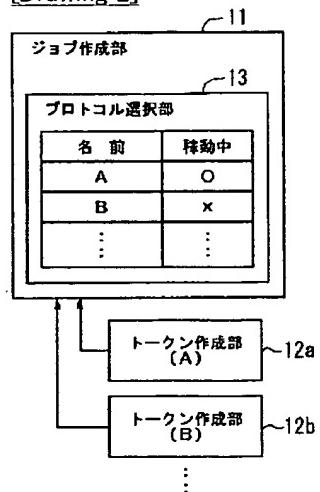
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DRAWINGS

[Drawing 1]



[Drawing 2]



[Drawing 3]

120

リモートマシン名	xx.xx.com
通信プロトコル	ftp
パス名	/tmp/a.ps
ユーザ名	taro
パスワード	*****

[Drawing 4]

110

```

ジョブ1
job-name=JOB1
transfer-method=referenced-data-transfer
document-content=DDR
copy-count=2

```

[Drawing 5]

(A)

リモート上のDDR指定

```

AEIdentifier=name
  → xx.xx.com
  syntax
  → DNS
local-reference=/tmp/a.ps
token=ftp用の名前+パスワード

```

(B)

同一マシン上のDDR指定

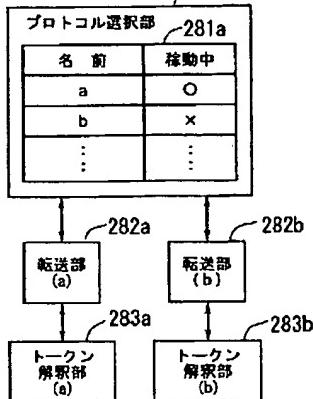
```

AEIdentifier=なし
local-reference=/tmp/a.ps
token=なし

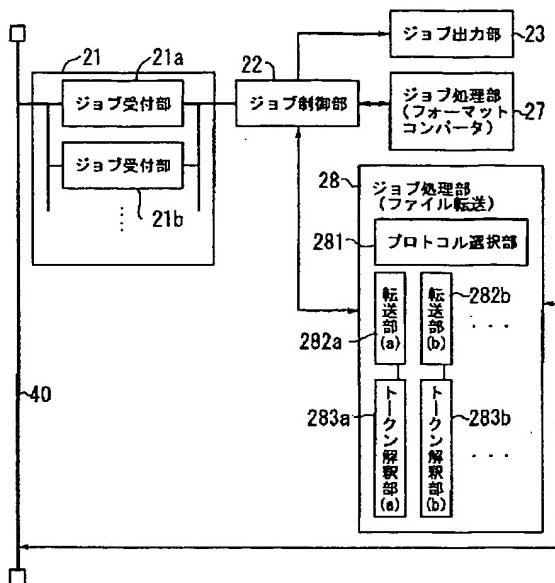
```

[Drawing 7]

281



[Drawing 6]



[Translation done.]

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		3 5 7		3 5 1 G 3 5 7 Z

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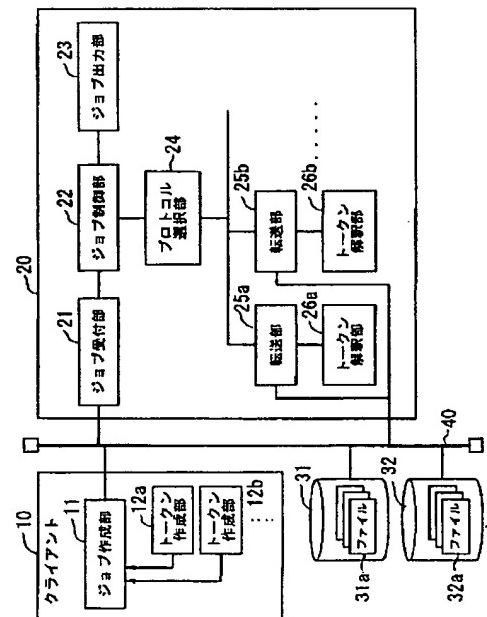
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(54)【発明の名称】 プリントシステム

(57)【要約】

【課題】 プリントサーバ指示の際にジョブだけを作成し、印刷データはジョブ処理時に指定された格納場所からファイルを取得してプリント処理を実行する場合に、ファイル転送のために複数種類の転送プロトコルに対応させる。

【解決手段】 クライアント10の側にはプロトコル毎のトークン作成部12a, 12b, ...を備え、プリントサーバ20の側にはプロトコル選択部24と、プロトコル毎に必要な転送部25a, 25b, ...およびトークン解釈部26a, 26b, ...の対とを備える。クライアント10のジョブ作成部11にてジョブを作成するときには、プロトコルに対応したトークン作成部を使用し、プリントサーバ20では、プロトコル選択部24が通知されたプロトコルを選択し、対応する転送部およびトークン解釈部を起動し、このトークン解釈部で解釈されたトークンを使用して、ファイル格納場所にアクセスし、ファイルを取得する。



【特許請求の範囲】

【請求項1】 ジョブを作成するジョブ作成手段をそれぞれ有する複数のクライアントと、印刷対象となるファイルを保存管理しているファイル管理装置と、前記クライアントから発行されたジョブを受け付け該ジョブに示された指示に従ってプリント処理を実行するプリントサーバとがネットワークによって接続され、前記クライアントからのリモートプリント指示によって前記プリントサーバが前記ファイル管理装置に保存されているファイルを取得してプリント処理を実行するプリントシステムにおいて、

前記クライアントは、前記プリントサーバが前記ファイル管理装置のファイルにアクセスするプロトコル毎にトークンを作成して前記ジョブ作成手段へ渡すトークン作成手段を備え、

前記プリントサーバは、ジョブに示された印刷対象を保存しているネットワークに接続された前記ファイル管理装置にアクセスするプロトコルの選択を行うプロトコル選択手段と、前記ファイル管理装置にアクセスするプロトコル毎に設けられ該プロトコル選択手段により選択されたプロトコルに対応して起動されて前記ファイル管理装置に保存されているファイルを取得する転送手段と、該転送手段に対応して設けられ前記トークン作成手段にて作成されたトークンの内容を解釈して前記転送手段が前記ファイル管理装置のファイルにアクセスするプロトコルに必要な情報を取り出すトークン解釈手段とを備えていることを特徴とするプリントシステム。

【請求項2】 前記プリントサーバは、前記トークン作成手段によって作成された情報にファイル管理装置の指定があるかどうかを判定してファイル管理装置の指定がない場合には印刷対象はプリントサーバ内のファイル管理装置にあるとして前記プロトコル選択手段を起動しないように制御する参照先指定判定手段を有することを特徴とする請求項1記載のプリントシステム。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 本発明はプリントシステムに関し、特にクライアントからの指示によりネットワーク上に分散配置されたファイル管理装置に保存されているファイルを取得してプリント処理を実行するプリントシステムに関する。

【0002】

【従来の技術】 現在のネットワーク環境においては、文書を複製するための複写・プリントシステムを構成する機能部品がネットワーク上で分散することがある。たとえば、印刷データを読み取るスキャナ部、データを蓄積しておくデータ蓄積部、データをプリントする印字部などの機能部品が異なるマシン上に存在することがある。このような環境で、クライアントが印字部に対してプリント要求を発行する場合には、通常は、プリント指示は

データと一緒に送られる。このため、あるクライアントが別のマシン上のデータ蓄積部に蓄積されているデータをプリント出力しようとする場合には、そのクライアントがデータ蓄積部のデータを一旦取り出して格納した後、改めてそのデータと一緒にプリント指示を送ってプリント出力を得るようにしている。

【0003】一方、プリンティングプロトコルに関して、ISO/IEC10175-1のDPA (Document Printing Application)における記述の中には、参照先転送の記述がある。すなわち、クライアントからデータの参照先を指定してプリントサーバにプリント指示を出すことにより、プリントサーバは指定された参照先からデータを取り出して、プリント出力するものである。

【0004】

【発明が解決しようとする課題】 従来、各種機能部品を組み合わせて複写・プリントシステムを構成する場合に、機能部品間で複数種類の通信プロトコルが存在するが、DPAでは複数種類の転送プロトコルについては言及していない。しかし、現実に複写・プリントシステムを構成しようとすると、データ蓄積部は様々なプロトコルが存在するために、プリントサーバの側ではこれに対応することが必要になる。

【0005】また、データ蓄積部と印字部とが同一マシン上に存在することもある。このような場合にも、従来では、そのマシン内でデータ蓄積部から印字部へのデータ転送という無駄な転送操作が行われている。

【0006】本発明はこのような点に鑑みてなされたものであり、複数種類の転送プロトコルに対応したプリントシステムを提供することを目的とする。

【0007】

【課題を解決するための手段】 本発明では上記課題を解決するために、ジョブを作成するジョブ作成手段をそれぞれ有する複数のクライアントと、印刷対象となるファイルを保存管理しているファイル管理装置と、前記クライアントから発行されたジョブを受け付け該ジョブに示された指示に従ってプリント処理を実行するプリントサーバとがネットワークによって接続され、前記クライアントからのリモートプリント指示によって前記プリントサーバが前記ファイル管理装置に保存されているファイルを取得してプリント処理を実行するプリントシステムにおいて、前記クライアントは、前記プリントサーバが前記ファイル管理装置のファイルにアクセスするプロトコル毎にトークンを作成して前記ジョブ作成手段へ渡すトークン作成手段を備え、前記プリントサーバは、ジョブに示された印刷対象を保存しているネットワークに接続された前記ファイル管理装置にアクセスするプロトコルの選択を行うプロトコル選択手段と、前記ファイル管理装置にアクセスするプロトコル毎に設けられ該プロトコル選択手段により選択されたプロトコルに対応して起

動されて前記ファイル管理装置に保存されているファイルを取得する転送手段と、該転送手段に対応して設けられ前記トークン作成手段にて作成されたトークンの内容を解釈して前記転送手段が前記ファイル管理装置のファイルにアクセスするプロトコルに必要な情報を取り出すトークン解釈手段とを備えていることを特徴とするプリントシステムが提供される。

【0008】上記構成によれば、クライアントのジョブ作成手段にてジョブを作成する際に、プリントサーバがファイル管理装置のファイルにアクセスするプロトコル毎に用意されたトークン作成手段を使用してトークンを作成する。ジョブ作成手段は参照データ転送などを指定したジョブを作成し、トークンとともに、プリントサーバへプリント指示を出す。プリントサーバでは、そのジョブを受け付け、ジョブに参照データ転送が指示されている場合には、プロトコル選択手段がファイル管理装置のプロトコルに対応した転送手段を選択し、トークン解釈手段にて解釈されたトークンを用いてファイル管理装置のファイルにアクセスし、そのファイルをプリントサーバへ転送する。プリントサーバは、転送されたファイルをプリント出力する。

【0009】また、プリントサーバは、参照先指定判定手段を有し、トークン作成手段によって作成された情報にファイル管理装置の指定があるかどうかを判定するようしている。

【0010】この構成によれば、受け付けたジョブにファイル管理装置の指定がない場合には、印刷対象ファイルはローカルマシン、つまり、当該プリントサーバ内のファイル管理装置にあると判定されることになり、プロトコル選択手段を起動せずに、プリントサーバ内のファイル管理装置からファイルを直接取得してジョブ出力手段に渡す。

【0011】

【発明の実施の形態】図1は本発明のプリントシステムを示した原理構成図である。本発明のプリントシステムは、少なくとも1つのクライアント10と、プリントサーバ20と、少なくとも1つのファイルサーバ31、32、・・・とから構成され、それぞれネットワーク40によって相互に接続されている。クライアント10はジョブを作成するジョブ作成部11と、プリントサーバがファイル管理装置のファイルにアクセスするプロトコル毎に用意されたトークン作成部12a、12b、・・・とを有している。プリントサーバ20は、クライアント10から発行されたジョブを受け付けるジョブ受付部21と、受け付けられたジョブを管理するジョブ制御部22と、ジョブに示された指示に従ってプリント処理を実行するジョブ出力部23と、指定されたファイルサーバにアクセスするプロトコルを選択するプロトコル選択部24と、ファイルサーバにアクセスするプロトコル毎に設けられてファイルサーバに保存されているファイルを

取得する転送部25a、25b、・・・と、各転送部に対応して設けられたトークン解釈部26a、26b、・・・とを有している。また、ファイルサーバ31、32、・・・では、印刷対象となるファイル31a、32b、・・・をそれぞれ保存管理している。

【0012】まず、クライアント10において、ジョブ作成部11によりジョブを作成する際に、プリントサーバ20が印刷対象ファイルを保存しているファイルサーバにアクセスするプロトコルに対応したトークン作成部12a、12b、・・・を使ってトークンを作成する。たとえば、ファイルサーバ31のファイル31aを印刷対象ファイルとし、トークン作成部12aを使ってそのファイルサーバ31へアクセスするためのトークンを作成したとする。ジョブ作成部11は転送方法、複製部数などを指定したジョブを作成し、トークンと一緒にプリントサーバ20に対してプリント指示を出す。

【0013】プリントサーバ20では、ジョブ受付部21がそのジョブを受け付け、ジョブ制御部22がジョブ処理に関する各種制御を行う。ここで、受け付けたジョブに転送方法として参照データ転送が指示されていて、ファイルサーバ31が指定されている場合には、ジョブ制御部22はプロトコル選択部24に制御を渡す。プロトコル選択部24は転送部25a、25b、・・・の中から指定されたファイルサーバ31のプロトコルに対応した転送部、たとえば転送部25aを選択して起動させる。転送部25aは、対応するトークン解釈部26aにて解釈されたトークンを用いてファイルサーバ31のファイル31aにアクセスし、そのファイル31aをプリントサーバ20へ転送する。転送されたファイル31aはジョブ制御部22を通じてジョブ出力部23に渡され、プリント出力される。

【0014】ここで、受け付けたジョブに転送方法として参照データ転送が指示されているが、ファイルサーバ31が指定されていない場合には、ジョブ制御部22は印刷対象ファイルとしてプリントサーバ20内に保存されているファイルが指示されていると判定し、ファイルの転送操作はしない。この場合、そのジョブを処理する順番が来た段階で、印刷対象ファイルは保存されている場所から直接読み出されてジョブ出力部23に渡される。

【0015】このため、必要な転送プロトコルだけを選択して使用することによる資源の効率化がはかられ、しかも、トークン作成部12a、12b、・・・、転送部25a、25b、・・・は、他の構成に依存しないので、転送プロトコルに合わせて追加することができる。また、同一マシン上のファイルは転送の必要がないので、無駄なファイル転送を防ぐことができる。

【0016】次に、本発明の実施の形態を、ネットワークプリント装置に適用した場合を例にして説明する。図

2はクライアントの具体的な構成例を示す図である。【0017】この図において、ジョブ作成部11はプロトコルを選択するプロトコル選択部13を有している。プロトコル選択部13はプロトコルテーブルを保持しており、クライアントにプロトコル別のトークン作成部がインストールされる度にそのトークン作成部が登録される。このプロトコルテーブルには、また、トークン作成部が稼働中であるかどうかの情報も保存されている。この情報は、そのクライアントにおいて、先に誰かユーザが使用した場合に登録される。これにより、多くのトークン作成部がインストールされている場合に、現在稼働中のトークン作成部が判断できる。また、必要なトークン作成部だけを動作させることができるので、稼働時に占有されるメモリの容量を減らすことができる。

【0018】プロトコル選択部13によってトークン作成部12a, 12b, …の1つが選択され、たとえばトークン作成部12aが選択されると、トークン作成部12aが起動され、ユーザに対して必要情報の入力を要求する。その入力画面の一例を以下に示す。

【0019】図3はトークン作成部の入力画面の例を示す図である。トークン作成部12aが稼働すると、クライアント10の図示しない表示部の画面上には、たとえば図示のようなウインドウ120が表示される。このウインドウ120には、ファイルサーバの名前を入力する「リモートマシン名」、ファイルを転送するプロトコル名を入力する「通信プロトコル」、そのファイルサーバにおけるファイル格納場所を入力する「パス名」、ユーザ名を入力する「ユーザ名」、そしてパスワードを入力する「パスワード」の入力欄がある。図示の例では、ファイルサーバ名は「x.x.x.com」、ファイル転送プロトコルは「ftp(file transfer protocol)」であり、印刷対象ファイル「a.ps」がそのファイルサーバのディレクトリまたはフォルダ「tmp」に保存されていて、ユーザ名を「taro」とした場合を示している。なお、パスワードは入力内容を表示せず、入力した桁数だけ「*」で表示するようしている。

【0020】トークン作成部12aは、入力された情報を暗号化し、暗号化した情報をトークンとしてジョブ作成部11に渡す。ジョブ作成部11では、ファイル格納情報をデータの参照先としたジョブを作成する。そのジョブの一例を以下に示す。

【0021】図4はジョブ作成部にて作成されたジョブの内容例を示す図である。ジョブ作成部11は、ジョブを作成するとき、DPAの定義に従って属性情報を指定する。図示の例によれば、属性情報としてジョブ名(job-name)に「JOB1」および複製部数(copy-count)に「2」を指定したジョブ110が作成され、同時に、属性情報としてファイル転送を行うことを指示する転送方法(transfer method)

od)に「参照データ転送(reference-data-transfer)」を設定し、プリントしたいファイルの指示(document-content)としてファイルの所在場所を「DOR(Distinguished-object-reference; ISO/IEC10031-2)」で指定している。このDOR指定の一例を以下に示す。

【0022】図5はジョブに指定された参照先のDORの内容例を示す図である。DORの内容の例として、

(A)には参照されるファイルの格納場所がファイルサーバのようなプリントサーバとは別のマシン上にある場合を示し、(B)にはプリントサーバ20、すなわち、同一マシン上にある場合を示している。まず、リモートマシン上のファイルを指定する場合から説明する。

【0023】(A)に示したように、DORはその定義に従って記述されており、図示の例によれば、DORの構成要素の「AE Identifier」には、名前(name)としてリモートマシン名、たとえばファイルサーバ名である「x.x.x.com」が指定されており、かつシンタックス(syntax)にはそのファイルサーバ名がどのネットワークプロトコルによって記述されているかを指定、ここでは、UNIX(X/Open Co., Ltd.がライセンスしている米国およびその他に国における登録商標、以降省略)系のプロトコルであるDNS(Domain Name Service)を指定している。次の要素「local-reference」にはそのリモートマシン上におけるファイルの所在情報、すなわち、そのマシン上のパス名「/tmp/a.ps」が指定され、最後に、トークン

が指定される。ここでは、UNIX系のファイル転送プロトコル「ftp」が選択されているので、トークンには「ftp」で必要な情報であるユーザ名とパスワードとが記述される。

【0024】一方、ファイルが同一マシン上にある場合は、(B)に示したように、DORの「AE Identifier」を「なし」に設定する。もちろん、この場合はファイル転送の必要がないので、リモートマシンにアクセスするのに必要なトークンも「なし」である。

【0025】図6はプリントサーバの構成例を示す図である。この図において、プリントサーバ20は、ネットワーク40に接続されたジョブ受付部21を有している。このジョブ受付部21は様々なプロトコルのクライアントから要求を受け付けることができるよう、複数のジョブ受付部21a, 21b, …によって構成されている。ジョブ受付部21の出力はジョブ制御部22に接続されている。ジョブ制御部22は、実際に印字処理を行うジョブ出力部23と、このジョブ出力部23にジョブを渡すまでに必要な処理を行う複数のジョブ処理部とが接続されている。ここでは、ジョブ処理部として、文書ファイルのフォーマット変換を行うジョブ処理

部27と、リモートマシンからファイルを取得するジョブ処理部28とだけを示してあるが、他に、図示はしないが、イメージ処理をしたり、クライアントなどに対して通知処理をしたりするジョブ処理部が接続されている。

【0026】ファイル転送処理に係るジョブ処理部28は、プロトコル選択部281と、プロトコル別に対応用意された転送部282a, 282b, ...およびトークン解釈部283a, 283b, ...とから構成されている。このジョブ処理部28では、転送部282a, 282b, ...はリモートマシンにアクセスするために直接ネットワーク40に接続されている。転送部およびトークン解釈部の対は、転送プロトコルが新規に追加された場合に、クライアントのトークン作成部とともに、他の構成を変更することなく、単に追加するだけでよい。

【0027】ジョブ受付部21にて受け付けられたジョブを処理するときに、ジョブ制御部22はジョブに示されている転送方法の指定を判定し、これが参照データ転送を指示している場合には、ジョブ処理部28のプロトコル選択部281を呼び出す。プロトコル選択部281はDORからプロトコルを選択し、選択されたプロトコルに応じて、転送部を起動する。ここでは、たとえば転送部282aが起動されたとする。転送部282aはそのトークン解釈部283aに依頼してトークンを解釈し、「ftp」で必要な情報、すなわち、ユーザ名およびパスワードを取得し、これを基にしてDORに示されたマシン名のファイルサーバへアクセスし、ファイルを取得する。取得されたファイルは、必要なら、ジョブ処理部27にて文書ファイルのフォーマット変換処理が行われ、ジョブ出力部23に渡されて、プリント出力される。

【0028】図7はプロトコル選択部の構成例を示す図である。この図において、プロトコル選択部281は、プロトコルテーブル281aを保持しており、このジョブ処理部28に、転送部およびトークン解釈部の対がインストールされる度にその転送部がプロトコルテーブル281aに登録される。このプロトコルテーブル281aには、また、転送部が稼働中であるかどうかの情報も保存されている。プロトコル選択部281は、プロトコルの選択の場合に、この稼働中かどうかの登録情報を見て、転送部を新たに起動するかどうかを判定する。これにより、必要な転送部のみが起動されることになる。

【0029】ジョブ制御部22からの指示によりプロトコル選択部281においてプロトコルの選択が行われると、選択されたプロトコルに対応する転送部が起動され、それに対応するトークン解釈部が、クライアントの

トークン作成部にて暗号化されたトークンを復号化し、復号化されたトークンを転送部に返す。転送部はそのトークンを使ってファイルサーバにアクセスし、目的のファイルを取得することになる。

【0030】

【発明の効果】以上説明したように本発明では、プロトコル選択手段と、プロトコル毎にファイル転送に必要なトークン作成手段、転送手段、およびトークン解釈手段とを備え、使用時はそのプロトコルでのファイル転送に必要な手段を取捨選択するようにしたので、メモリなどの資源の効率化がはかれ、また、ファイル転送に必要な手段は他の機能と独立しているので、新規に転送プロトコルを追加する場合にも、その転送プロトコルに関連した手段のみを追加するだけでよいので、転送プロトコルの追加が容易である。また、リモートリファレンスの表現を変更することにより、同一マシン上（ローカル）のリファレンスが可能になったので、同一マシン上のファイルは転送する必要がなくなり、無駄なファイル転送を抑止することができる。

【図面の簡単な説明】

【図1】本発明のプリントシステムを示した原理構成図である。

【図2】クライアントの具体的な構成例を示す図である。

【図3】トークン作成部の入力画面の例を示す図である。

【図4】ジョブ作成部にて作成されたジョブの内容例を示す図である。

【図5】ジョブに指定された参照先のDORの内容例を示す図である。

【図6】プリントサーバの構成例を示す図である。

【図7】プロトコル選択部の構成例を示す図である。

【符号の説明】

10 クライアント

11 ジョブ作成部

12a, 12b, ... トークン作成部

20 プリントサーバ

21 ジョブ受付部

22 ジョブ制御部

23 ジョブ出力部

24 プロトコル選択部

25a, 25b, ... 転送部

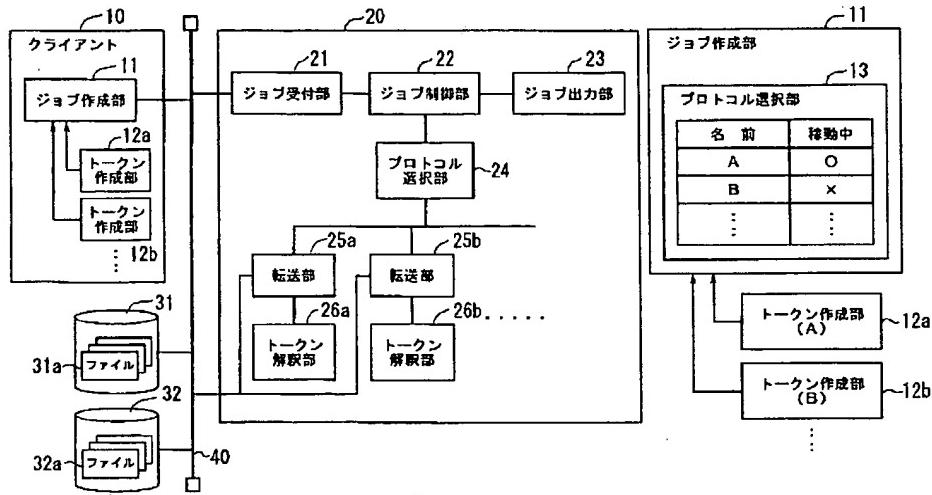
26a, 26b, ... トークン解釈部

31, 32, ... ファイルサーバ

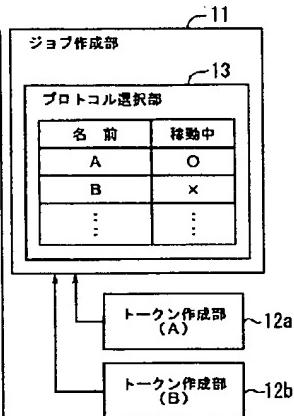
31a, 32b, ... ファイル

40 ネットワーク

【図1】



【図2】



【図5】

【図3】

リモートマシン名	xx.xx.com
通信プロトコル	ftp
パス名	/tmp/a.ps
ユーザ名	taro
パスワード	*****

【図4】

ジョブ1

```

job-name=JOB1
transfer-method=referenced-data-transfer
document-content=DOR
copy-count=2

```

(A)

リモート上のDOR指定

```

AEIdentifier=name
→ xx.xx.com
syntax
→ DNS
local-reference=/tmp/a.ps
token=ftp用の名前+パスワード

```

(B)

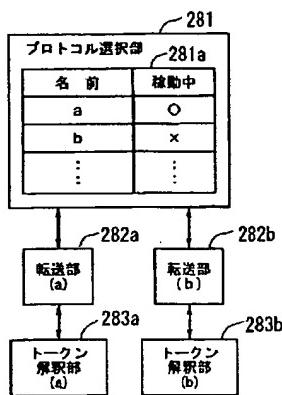
同一マシン上のDOR指定

```

AEIdentifier=なし
local-reference=/tmp/a.ps
token=なし

```

【図7】



【図6】

